

1. (Currently Amended) A method for generating steam, ~~in particular ultrapure steam, by comprising:~~
_____ introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction zone ~~and;~~
_____ exothermically reacting ~~them,~~ the fuel and oxidizing agent to form hot reaction gases;
_____ transferring the hot reaction gases ~~formed~~ into an evaporation zone;
_____ introducing water in liquid ~~and/or form,~~ vapor form, or both into the evaporation zone, the water which is introduced being evaporated ~~and/or,~~ superheated, or both as it mixes with the hot reaction gases, ~~characterized in that~~ to form a steam-containing reaction mixture; and
_____ catalytically afterburning the steam-containing reaction mixture ~~undergoes catalytic afterburning.~~

2. (Currently Amended) The method as claimed in claim 1, ~~characterized in that comprising:~~
_____ flowing the steam-containing reaction mixture ~~flows through~~ a gas-permeable structure with a catalytically active surface.

3. (Currently Amended) The method as claimed in claim 2, ~~characterized in that wherein~~ the gas-permeable structure is comprises a foamed metallic or ceramic material.

4. (Currently Amended) The method as claimed in claim 2, ~~characterized in that wherein~~ the catalytically active surface is comprises platinum.

5. (Currently Amended) The method as claimed in claim 1, ~~characterized in that comprising:~~
_____ causing the steam-containing reaction mixture ~~leaves to leave~~ the evaporation zone via a throttle point and is ~~accelerated as it does so~~ accelerating the steam-containing reaction mixture.

6. (Currently Amended) The method as claimed in claim 5, ~~characterized in that wherein accelerating comprises accelerating~~ the reaction mixture is accelerated to the speed of sound.

7. (Currently Amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the oxidizing agent ~~is~~ comprises oxygen.

8. (Currently Amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the oxidizing agent ~~is~~ comprises hydrogen peroxide.

9. (Currently Amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the fuel ~~is~~ comprises hydrogen.

10. (Currently Amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the fuel ~~is~~ comprises a hydrocarbon.

11. (Currently Amended) The method as claimed in claim 8, ~~characterized in that wherein~~ the fuel ~~is~~ comprises natural gas.

12. (Currently Amended) The ~~use of the~~ method as claimed in ~~one of claims 1-9 for generating ultrapure steam~~ Claim 1, comprising:
forming a product with a steam content of at least 99.9% by weight, a temperature of up to 2000 K, and a pressure of up to 30 bar.

13. (Currently Amended) The ~~use of the~~ method as claimed in ~~one of claims 1-11 for generating~~ Claim 1, comprising:
introducing a steam product as working medium in an energy conversion process which is free of CO₂ emissions.

14. (Currently Amended) The ~~use of the~~ method as claimed in ~~one of claims~~

~~1-11 for generating Claim 1, comprising:~~

introducing a steam product for treating special waste.

15. (Currently Amended) A steam generator for generating steam, ~~in particular ultrapure steam, substantially comprising:~~

_____ a combustion and evaporation chamber (2) having a reaction zone (14) for the exothermic reaction of a fuel and an oxidizing agent, and having an evaporation zone (15) for the evaporation, and/or superheating, or both of an injected quantity of water;
_____ a device for feeding the fuel (4) and the oxidizing agent (5) into the reaction zone (14), to form a fuel/oxidizing agent mixture;

_____ an ignition device (1) for igniting at least some of the fuel/oxidizing agent mixture;

_____ a device (12) for feeding water (6) into the evaporation zone (15), and to form a steam-containing reaction mixture;

_____ an outlet nozzle (7) for the steam-containing reaction mixture, characterized in that; and

_____ a catalytic afterburning chamber (3) is arranged downstream of the reaction and evaporation chamber (2).

16. (Currently Amended) The steam generator as claimed in claim 15, ~~characterized in that wherein~~ the catalytic afterburning chamber (3) ~~is designed as comprises a housing (20), and a through-flow body with a catalytically active surface, a the-free cross section of flow (21) of which is the housing being acted on over a region of its axial length by a the through-flow body (16) with a catalytically active surface.~~

17. (Currently Amended) The steam generator as claimed in claim 16, ~~characterized in that the flow passage (21) of the afterburning chamber (3) is of comprises a substantially cylindrical design flow passage.~~

18. (Currently Amended) The steam generator as claimed in claim 17, ~~characterized in that wherein~~ the housing (20) ~~is designed as comprises a double-casing~~

tube.

19. (Currently Amended) The steam generator as claimed in claim 18,
~~characterized in that~~ wherein the housing (20) of the afterburning chamber (3) is air-cooled.

20. (Currently Amended) The steam generator as claimed in claim 16,
~~characterized in that~~ wherein the through-flow body (16) ~~is based on~~ comprises a foamed metal material or ~~on a~~ foamed ceramic material.

21. (Currently Amended) The steam generator as claimed in claim 16,
~~characterized in that~~ wherein the through-flow body (16) ~~is based on~~ comprises a metallic or ceramic honeycomb structure.

22. (Currently Amended) The steam generator as claimed in claim 16,
~~characterized in that~~ further comprising a gas-analysis device (22) is arranged downstream of the through-flow body.

23. (Currently Amended) The steam generator as claimed in claim 22,
~~characterized in that~~ further comprising a lambda sensor (22) is arranged inside the flow passage (21).

24. (Currently Amended) The steam generator as claimed in claim 22,
~~characterized in that~~ further comprising:
_____ a removal pipe;
_____ a pressure-relief device;
_____ a chamber including the gas-analysis device;
_____ wherein the housing of the afterburning chamber (3) has a through-opening for a
the removal pipe (23), which the removal pipe (23) is designed to be being gas-permeable
toward the flow passage (21) and; and
_____ wherein the removal pipe outside the housing (20) is in communication, via a the

pressure-relief device ~~(24)~~, with athe chamber ~~(25)~~ which accommodates a including the
gas-analysis device, ~~in particular a lambda sensor (22)~~.

25. (New) The steam generator as claimed in claim 24, wherein the gas-analysis device comprises a lambda sensor.